

# SOCIO-DEMOGRAPHIC CORRELATES OF PSYCHOACTIVE SUBSTANCE ABUSE AMONG ADOLESCENTS IN EDO SOUTH SENATORIAL DISTRICT OF EDO STATE

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## Abstract

*Psychoactive substance abuse among adolescents has emerged as a significant public health concern globally, with profound implications for the mental and physical well-being of young individuals. The study examined the socio-demographic correlates of psychoactive substance abuse among adolescents in Edo South senatorial district of Edo State. A descriptive cross-sectional research design involving a total number of 408 students was used for this study. Multi-stage sampling procedure was employed. Multistage sampling procedure was employed. Data collection was done through self-administered, semi-structured questionnaire. Data was analysed using frequency counts percentage and linear regression. The results showed that the relationship between gender and psychoactive substance abuse among adolescents in Edo South senatorial district of Edo State was statistically significant ( $p = .000$ ). A statistically significant relationship ( $p = 0.022$ ) was also established between age and the abuse of psychoactive substance among adolescents in Edo South senatorial district of Edo State. However, the relationship between location and psychoactive substance abuse among adolescents in Edo South senatorial district of Edo State was not statistically significant ( $p = 0.137$ ). The study also revealed that the most common source of psychoactive substance for both male and female respondents was peers (62.21% and 88.37% respectively). It was recommended that gender-specific programmes should be developed by government and non-governmental organizations to address the distinct factors driving substance abuse among males and female adolescents.*

**Key Words:** *Psychoactive substance, Socio-demographic, Adolescents, Gender.*

## Introduction

Adolescence is a crucial developmental stage characterised by significant physical, psychological, and social changes. It begins with puberty and lasts into the late teens or early twenties. During this period, individuals develop cognitive skills, emotional sensitivity, identity formation, and autonomy. Adolescents grapple with complex issues like peer pressure, identity, moral development, and future goals. Physical changes like rapid growth and sexual maturation add to the unique challenges and opportunities presented by adolescence. However, adolescence represents a vulnerable period for the onset of psychoactive substance use (Squeglia and Cservenka, 2017; Saban, Flisher, Laubscher 2014) as the complex interaction of physical, psychological, and social changes during this developmental stage can make young individuals more susceptible to experimenting with drugs and alcohol.

The World Health Organisation defines psychoactive substances as a class of substances, licit and illicit, that when ingested or administered affect mental processes (WHO, 2018). Psychoactive substances can be broadly classified into central nervous system stimulants, depressants, and hallucinogens (Zapata Matey, Montalvo and García-Ruiz, 2021). Specific examples of psychoactive substances include a range of substances like alcohol, cocaine, opium, cannabinoids, amphetamines, sedatives, hypnotics, anxiolytics, as well as other stimulants such as caffeine hallucinogens, nicotine, volatile solvents, and phencyclidine. These substances have the capacity to modify an individual's internal cognitive and emotional experiences, as well as their external behaviours leading to consequences such as poorer academic performance (Kristjansson, Sigfusdottir and Allegrante, 2013), neurocognitive deficits (Squeglia and Gray, 2016), and psychosocial problems (Poudel, Sharma, Gautam and Poudel, 2016).

Furthermore, adolescents' use of gateway drugs, such as tobacco and alcohol which are often readily accessible can serve as a potential entry point to the use of more illicit and harmful psychoactive substances like cannabis. In line with adolescents' use of gateway drugs, WHO (2018) reported that the use of psychoactive substances represents a significant global public health concern, impacting approximately 30 million individuals worldwide, with a notable proportion of these being young people. Specifically, alcohol is by far the most commonly used substance among adolescents, with 64% of 18 year olds endorsing lifetime alcohol use, followed by marijuana (45%) and cigarette use (31%) (Johnston, Malley, Miech, Bachman, and Schulenberg, 2016). These psychoactive substances are sourced by adolescents through diverse means that can encompass both legal and illicit sources. For instance, adolescents may access these substances through various means, such as prescription medications, social networks, and illegal markets. Corroborating this view, Afolabi, Ayilara, Akinyemi and Ola-Olorun (2012) reported that open drug market, peers and village drug hawkers were the most common source of psychoactive substances. Similarly Morris, (2016) reported that students mostly accessed psychoactive drugs from the shops around the school and from the schools' support staff.

Over the past decade, researchers (Khoza and Shilubane, 2021; Yunusa, Bello, Idris, Haddad and Adamu, 2017) have reported a steady increase in psychoactive substance abuse in developing countries, including Nigeria. However, the abuse of psychoactive substances among adolescents seems to show a correlation with certain socio-demographic variables. For instance, location seems to influence the abuse of psychoactive substances. In line with this, Dickson, Gately and Field (2013) opined that living in a rural area was a protective factor against alcohol dependence. However, Jadnanansing, et al.,(2021) reported a contradictory positive correlation between living in a rural area and alcohol abuse. Similarly, the Canadian Centre on Substance Abuse (2015) reported that students who attended school in a rural setting were close to one and a half to three times more likely to report alcohol use in the past 12 months or 30 days. There was some indication that rural students were also more likely to report drinking five or more drinks on a single occasion suggesting that students attending schools in rural settings could be at a greater risk for harms associated with alcohol use (Canadian Centre on Substance Abuse, 2015).

Several studies have been conducted to examine the role of gender and age as correlates of psychoactive substance use among adolescents. Akamnnioo and Adoyanto (2015) Champion, Teeson and

Newton (2016) and Manyike (2016) suggested that the male gender is significantly associated with use of cannabis, cocaine, other opioids, sleeping pills and inhalational solvents. In a similar finding, Duru, Oluoha, Okafor, Diwe, Iwu and Aguocha (2017) also reported that male were five times more likely to use psychoactive substances compared to their female counterpart. However, in a contradictory report, Ekwueme and Chukwuneke (2010) reported no significant relationship between the abuse of psychoactive substances and gender. Also, as adolescents progress through this developmental stage, their curiosity and susceptibility to peer influences may lead to increased psychoactive substance use. In line with this, Akanni and Adayonfo (2017) reported a significant relationship between age the psychoactive substance abuse with older adolescents more likely to abuse psychoactive drugs. Corroborating this finding, Chukwujekwu (2017) reported that age is significantly associated with the use of sleeping pills, and inhalation of solvents.

The researchers' observations about psychoactive substance use in Edo South Senatorial District of Edo State have revealed a worrisome trend that that requires thorough investigation. It has become evident that a notable number of adolescents within the region are engaging in the misuse of psychoactive substances. This observation not only raises concerns about the immediate health and well-being of these adolescents but also signifies potential long-term consequences for their futures, as substance abuse during adolescence can lead to adverse outcomes in adulthood. Given the complexity and variability of psychoactive substance abuse, it is crucial to examine socio-demographic factors such as location, age, and gender as correlates of psychoactive substance abuse. Understanding how these factors influences psychoactive substance abuse can provide a more nuanced perspective of psychoactive substance abuse among adolescents and help identify specific risk factors and patterns within different demographic groups, which in turn, can inform the development of tailored prevention and intervention strategies. The study was guided by one research question and three hypotheses.

### **Research Question**

1. What are the sources of psychoactive substances abused among adolescent in Edo South Senatorial District of Edo State?

### **Hypotheses**

Three hypotheses were used in this study was formulated and tested at 0.05 level of significance:

1. There is no significant relationship between gender and the abuse of psychoactive substances among adolescent in Edo South Senatorial District of Edo State.
2. There is no significant relationship between age and the abuse of psychoactive substances among adolescent in Edo South Senatorial District of Edo State.
3. There is no significant relationship between location and the abuse of psychoactive substances among adolescent in Edo South Senatorial District of Edo State.

## Methodology

The population of the study is one hundred and seven thousand, two hundred and seventy-one (107,271) senior secondary school students in both public and registered private schools in the seven (7) Local Government Area that makes up the Edo South senatorial district of Edo state (Edo state Ministry of Education, 2022). A sample size of 384 respondents was selected using the Cochran's formulae and subsequently rounded up to 408 by the researchers to help compensate for potential non-response. The study adopted a descriptive cross-sectional research design. The multistage sampling was used for this study. In the first stage, simple random sampling technique was used to select three (3) Local Government Areas from the seven (7) Local Government Areas in Edo South senatorial district of Edo. In the second stage, one (1) urban public school and one (1) urban private school were selected from each of the three (3) Local Government Areas using simple random sampling technique making a total of six (6) schools. Proportionate sampling technique was used in the third stage to select 5percent of students in each of the six selected schools. Lastly, systematic sampling technique was used to pick the first and every sixth student in the six selected schools until the sample size is completed. Same procedure was repeated in rural schools and this gave a total of two hundred and sixteen (216) female respondents and one hundred and ninety-two (192) male respondents.

The research instrument used for data collection was a modified version of the United Nations questionnaire for conducting school surveys on drug abuse (United Nations, 2003). A reliability index of 0.79 was obtained using test-retest reliability method and deemed appropriate for the study. The collected data was coded and analyzed using descriptive statistics of frequency counts, simple percentages and linear regression. Permission to carry out the study was obtained and informed consent was sought from each participant. Participants were informed of their right to make a choice either to take part in the study or not. All through the study, confidentiality was maintained.

## Results

**Hypothesis one:** There is no significant relationship between gender and the abuse of psychoactive substances among adolescent in Edo South Senatorial District of Edo State.

**Table 1: Linear regression analysis on the relationship between gender and the abuse of psychoactive substances among adolescent in Edo South Senatorial District of Edo State**

Model Summary

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .373 <sup>a</sup> | .139     | .137              | .448                       |

a. Predictors: (Constant), gender

ANOVA<sup>a</sup>

| Model        | Sum of Square | df  | Mean Square | F      | Sig.              |
|--------------|---------------|-----|-------------|--------|-------------------|
| 1 Regression | 13.220        | 1   | 13.220      | 65.747 | .000 <sup>b</sup> |
| Residual     | 81.633        | 406 | .201        |        |                   |
| Total        | 94.853        | 407 |             |        |                   |

a. Dependent Variable: Psychoactive substance abuse

b. Predictors: (Constant), gender

Coefficients<sup>a</sup>

| Model        | Unstandardized |            | Standardized |        |      |
|--------------|----------------|------------|--------------|--------|------|
|              | Coefficients   |            | Coefficients | t      | Sig  |
|              | B              | Std. Error | Beta         |        |      |
| 1 (Constant) | .836           | .069       |              | 12.071 | .000 |
| Gender       | .360           | .044       | .373         | 8.103  | .000 |

Table 1 shows the linear regression analysis on the relationship between gender and the abuse of psychoactive substances among adolescent in Edo South Senatorial District of Edo State. The model summary indicated that the independent variable, gender, accounted for approximately 13.9% of the

variance in psychoactive substance abuse ( $R^2 = 0.139$ ). The adjusted  $R^2$  value of 0.137 suggests that the model is a reasonable fit for the data, with a standard error of the estimate of .448. The ANOVA results revealed that the relationship between gender and psychoactive substance abuse was statistically significant ( $F = 65.747$ ,  $p = .000$ ). This indicates that gender significantly predicts the abuse of psychoactive substances among adolescents in adolescent in Edo South Senatorial District of Edo State. The standardized coefficient (Beta) of 0.373 further confirms that gender has a moderate positive effect on the abuse of psychoactive substances. This suggests that male adolescents are more likely to engage in psychoactive substance abuse compared to the other.

Given the significance level ( $p < .005$ ), the null hypothesis, which states that there is no significant relationship between gender and the abuse of psychoactive substances among adolescents in the Edo South Senatorial District of Edo State, is rejected. Therefore, it can be concluded that there is a significant relationship between gender and psychoactive substance abuse among adolescents in in Edo South Senatorial District of Edo State.

**Hypothesis Two:** There is no significant relationship between age and the abuse of psychoactive substances among adolescent in Edo South Senatorial District of Edo State.

**Table 2: Linear regression analysis on the relationship between age and the abuse of psychoactive substances among adolescent in Edo South Senatorial District of Edo State.**

| Model Summary |                   |          |                   |                            |
|---------------|-------------------|----------|-------------------|----------------------------|
| Model         | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1             | .113 <sup>a</sup> | .013     | .010              | .480                       |

a. Predictors: (Constant), Age

| ANOVA <sup>a</sup> |               |     |             |       |                   |
|--------------------|---------------|-----|-------------|-------|-------------------|
| Model              | Sum of Square | df  | Mean Square | F     | Sig.              |
| 1 Regression       | 1.2191        | 1   | 1.219       | 5.286 | .022 <sup>b</sup> |
| Residual           | 93.634        | 406 | .231        |       |                   |
| Total              | 94.853        | 407 |             |       |                   |

a. Dependent Variable: Psychoactive substance abuse

b. Predictors: (Constant), Age

| Coefficients <sup>a</sup> |                |            |              |      |
|---------------------------|----------------|------------|--------------|------|
| Model                     | Unstandardized |            | Standardized |      |
|                           | Coefficients   |            | Coefficients |      |
|                           | B              | Std. Error | Beta         | t    |
|                           |                |            |              | Sig. |

|   |            |       |      |       |        |       |
|---|------------|-------|------|-------|--------|-------|
| 1 | (Constant) | 1.542 | .079 |       | 19.441 | .000  |
|   | Age        | .360  | .048 | -.113 | -2.299 | .022\ |

a. Dependent Variable: Psychoactive substance abuse

Table 2 shows the results of a linear regression analysis examining the relationship between age and the abuse of psychoactive substances among adolescents in the Edo South Senatorial District of Edo State. The model summary indicates that age accounts for approximately 1.3% of the variance in psychoactive substance abuse ( $R^2 = 0.013$ ). The adjusted  $R^2$  value of 0.010 suggests that the model has a very limited fit to the data, with a standard error of the estimate of 0.480. The ANOVA results indicate that the relationship between age and psychoactive substance abuse is statistically significant, ( $F = 5.286$ ,  $p = 0.022$ ). The negative standardized coefficient (Beta) of -0.113 further confirms the weak negative relationship between age and psychoactive substance abuse suggesting that as adolescents get older, their likelihood of engaging in psychoactive substance abuse slightly decreases. Since the p-value is less than the alpha level of 0.05, the null hypothesis, which states that there is no significant relationship between age and the abuse of psychoactive substances among adolescents in the Edo South Senatorial District of Edo State, is rejected.

Given these results, it can be concluded that age is a significant but weak predictor of psychoactive substance abuse among adolescents in the Edo South Senatorial District of Edo State. Specifically, older adolescents are slightly less likely to engage in psychoactive substance abuse compared to younger ones.

**Hypothesis Three:** There is no significant relationship between location and the abuse of psychoactive substances among adolescent in Edo South Senatorial District of Edo State.

**Table 3: Linear regression analysis on the relationship between location and the abuse of psychoactive substances among adolescent in Edo South Senatorial District of Edo State**

| Model Summary |                   |          |                   |                            |  |
|---------------|-------------------|----------|-------------------|----------------------------|--|
| Model         | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |  |
| 1             | .074 <sup>a</sup> | .005     | .003              | .482                       |  |

  

| ANOVA <sup>a</sup> |               |     |             |       |                   |
|--------------------|---------------|-----|-------------|-------|-------------------|
| Model              | Sum of Square | df  | Mean Square | F     | Sig.              |
| 1 Regression       | .517          | 1   | .517        | 2.225 | .137 <sup>b</sup> |
| Residual           | 94.336        | 406 | .232        |       |                   |

a. Predictors: (Constant), Location

|       |        |     |
|-------|--------|-----|
| Total | 94.853 | 407 |
|-------|--------|-----|

a. Dependent Variable: Psychoactive substance abuse

b. Predictors: (Constant), location

|       |            | Coefficients <sup>a</sup> |            |              |  |        |      |
|-------|------------|---------------------------|------------|--------------|--|--------|------|
| Model |            | Unstandardized            |            | Standardized |  |        |      |
|       |            | Coefficients              |            | Coefficients |  | t      | Sig  |
|       |            | B                         | Std. Error | Beta         |  |        |      |
| 1     | (Constant) | 1.245                     | .86        |              |  | 14.537 | .000 |
|       | Location   | .074                      | .050       | .074         |  | 1.492  | .137 |

a. Dependent Variable: Psychoactive substance abuse

Table 3 shows the results of a linear regression analysis examining the relationship between location and the abuse of psychoactive substances among adolescents in the Edo South Senatorial District of Edo State. The model summary indicates that location accounts for only 0.5% of the variance in psychoactive substance abuse ( $R^2 = 0.005$ ). The adjusted  $R^2$  value of 0.003 suggests that the model has a very poor fit to the data, with a standard error of the estimate of 0.482. The ANOVA results show that the relationship between location and psychoactive substance abuse is not statistically significant ( $F = 2.225$ ,  $p = 0.137$ ). Since the p-value (0.137) is greater than the alpha level of 0.05, the null hypothesis, which states that there is no significant relationship between location and the abuse of psychoactive substances among adolescents in the Edo South Senatorial District of Edo State, is accepted. However, the standardized coefficient (Beta) of 0.074 indicates a very weak positive relationship between location and psychoactive substance abuse though this relationship is not statistically significant at the 0.05 level.

Given these findings, it can be concluded that there is no significant relationship between location and psychoactive substance abuse among adolescents in the Edo South Senatorial District of Edo State. The weak positive effect indicated by the Beta coefficient suggests that location has little to no meaningful impact on the likelihood of psychoactive substance abuse in this population.

**Research Question Four:** What are the sources of psychoactive substances abused among adolescents in Edo South Senatorial District of Edo State?

**Table 4: Sources of psychoactive substances abused among adolescents in Edo South Senatorial District of Edo State**

| Sources of Psychoactive substances | Male (n=172) |        | Female (n=86) |        |
|------------------------------------|--------------|--------|---------------|--------|
|                                    | f            | %      | f             | %      |
| Shops around the school            | 44           | 25.58% | 11            | 12.79% |
| Open drug market                   | 98           | 57.00% | 28            | 32.56% |
| Peers                              | 107          | 62.21% | 76            | 88.37% |
| Village drug hawkers               | 19           | 11.05% | 0             | 0%     |
| Teachers                           | 4            | 2.33%  | 20            | 23.26% |
| Family Members                     | 22           | 12.79% | 18            | 20.93% |
| Entertainment Venues               | 32           | 18.60% | 22            | 25.58% |
| Bus stations                       | 2            | 1.16%  | 11            | 12.79% |
| Neighbours                         | 69           | 40.12% | 33            | 38.37% |
| Others                             | 4            | 2.33%  | 0             | 0%     |

\*Participants can tick more than one option

Table 4 shows the sources of psychoactive substance abuse among adolescents in Edo South Senatorial District of Edo State. It can be observed that the most common source of psychoactive substance for both male and female respondents was peers (62.21% and 88.37% respectively). Some other sources of psychoactive substances for both male and female respondents respectively were neighbours (40.12% and 33.49%), entertainment venues (18.60% and 25.58%), and open drug market (57.00% and 32.56%). It can be deduced that adolescents in Edo South Senatorial District of Edo State have access to psychoactive drugs from various sources but commonly from peers.

## Discussion of findings

The study revealed a significant relationship between gender and the abuse of psychoactive substances among adolescent in Edo South Senatorial District of Edo State with the male respondents more likely to abuse psychoactive substances than their female counterpart. The researchers are of the opinion that the observation of a significant relationship between gender and the abuse of psychoactive substances among adolescents in Edo South Senatorial District of Edo State may be due to the fact that the availability and accessibility of psychoactive substances can vary by gender. If substances are more accessible to males or if there are gender-specific preferences for certain types of substances, this can contribute to the observed differences in usage. Also, gender differences in risk perception and sensitivity to the consequences of substance abuse can influence usage patterns. Males may perceive lower risks associated with substance use or may be less concerned about the potential negative outcomes.

Furthermore, finding from this study also revealed a significant relationship between age and the abuse of psychoactive substances among adolescent in Edo South Senatorial District of Edo State. This

finding is in accordance with the findings of Akanni and Adayonfo (2017) reported a significant relationship between age the psychoactive substance abuse with older adolescents more likely to abuse psychoactive drugs. In explaining this finding, the researchers believe that older adolescents, typically in the 16-19 age range, may be more inclined to experiment with psychoactive substances as part of their developmental process. Also, older adolescents may have more autonomy and independence, which can provide them with greater opportunities to access and use substances without the oversight of parents or guardians. Similarly, older adolescents may have increased access to substances due to their age and social networks. They may be more likely to be in environments where substances are readily available.

Additionally, findings from this study revealed no significant relationship between location and the abuse of psychoactive substances among adolescent in Edo South Senatorial District of Edo State with similar number of participants in both urban and rural agree indicating to have abused psychoactive substances. This finding contradicts the findings of Jadnanansing, et al.,(2021) and the Canadian Centre on Substance Abuse (2015) who reported a significant relationship between location and the abuse of psychoactive substances. This finding may be due to the fact that the influence of peers and social networks can transcend geographical location as adolescents may be equally influenced by peer groups and social circles that promote substance use, regardless of whether they reside in urban or rural areas. Also, with increased access to information and media, adolescents in both urban and rural areas may be exposed to similar cultural and societal influences that normalize or glamorize substance use. This can contribute to consistent usage pattern.

Finally, findings from this study showed that adolescents in Edo South Senatorial District of Edo State have access to psychoactive drugs from various sources but commonly from peers. This finding contradicts with the findings of Morris, (2016) and Afolabi et al (2012) who both reported that the shops around the school and open drug markets were respectively the most common source of psychoactive substances for secondary school students. The researchers believes that adolescents are particularly susceptible to peer influence and pressure and the need for social validation and the fear of being isolated or ostracized by the peer group can significantly impact adolescents' decisions regarding substance use. Also, adolescents may feel more comfortable obtaining substances from peers they know and trust, believing that they are less likely to face legal consequences or potential harm. This sense of familiarity can make it easier to access drugs from peers.

## **Conclusion**

Psychoactive substance abuse is a significant issue among adolescents in Edo South senatorial district of Edo State with male adolescents primarily more engaged in psychoactive substance abuse. In the same vein, the absence of a significant location-based difference in substance abuse rates suggests that the issue is pervasive and not confined to a particular geographical setting. However, adolescents, particularly older adolescents are more engaged in the abuse of psychoactive substance in Edo South senatorial district of Edo State with access to psychoactive drugs gotten from various sources such as from peers. Based on the findings of the study, the following recommendations were made:

- i. Gender-specific programs should be developed by government and non-governmental organizations to address the distinct factors driving substance abuse among males and females.
- ii. School-based education, community outreach, and counselling services should be developed age-targeted initiatives to address the unique vulnerabilities and factors associated with psychoactive substance this critical developmental phase of adolescence.
- iii. Government and non-governmental organizations should develop and implement substance abuse prevention programs that are equally accessible and effective in both urban and rural areas of the district. These programs should be specifically designed to address the common risk factors that transcend geographical boundaries, such as peer influence and accessibility.
- iv. Government should develop and integrate strategies into school curricula and community programs that focus on building resilience against peer pressure. This could include workshops, interactive sessions, and role-playing scenarios that help adolescents handle peer pressure effectively.

## References

- Afolabi, M. O., Ayilara, A. E., Akinyemi, O. A., & Ola-Olorun, O. J. (2012). Survey of drug use among young people in Ife, Nigeria. *African Journal of Drug & Alcohol Studies*, 11(2), 45-56.
- Akamnni, O. O., & , Adoyanto, E. (2015). Correlates of psychoactive substance use among Nigeria Adolescents. *Sahel Medical Journal* 18(4), 192-199.
- Champion, K. E., Teeson, M., & Newton, N. C. (2016). Patterns and correlates of new psychoactive substance use in a sample of Australian high school students. *Drug and Alcohol Review*. 35, 338-344.
- Chukwujekwu, C. D. (2017). Psychoactive substance use among Nigerian students; Patterns and sociodemographic correlates. *American Journal of Psychiatry and Neuroscience*. 5(2), 22-25.
- Duru, C. B, Oluoha, U. R, Okafor, C. C., Diwe, K. C., Iwu, A. C., Aguocha, C. M. (2017) Socio-demographic determinants of psychoactive substance use among students of tertiary institutions in Imo State, Nigeria. *Journal of Addiction Research and Therapy*. 8,345.
- Ekwueme, O.E., & Chukwuneke, F. N.(2010). Prevalence and behaviour effects of psychoactive substance use among university students in South-Eastern Nigeria. *Ebonyi Medical Journal*, 9.1.
- Johnston, L. D., O'Malley, P. M., Miech, R. A., Bachman, J. G., & Schulenberg, J. E. (2015). Monitoring the Future national results on adolescent drug use: Overview of key findings.
- Khoza, M., & Shilubane, H. N. (2021). Substance use and associated factors among in school adolescents in South Africa. *Open Public Health Journal*, 14, 435-440.
- Kristjansson, A. L., Sigfusdottir, I.D., & Allegrante, J. P. (2013). Adolescent substance use and peer use: A multilevel analysis of cross-sectional population data. *Substance Abuse Treatment, Prevention, and Policy*.

- Manyike, P. C., Chinawa, J. M., Chinawa, A. T., Herbert, A. O., Nwokocha, A. R. C., & Odutola, I. (2016). Correlates for Psychoactive Substance Use among Boarding Secondary School Adolescents in Enugu, South East, Nigeria. *BMC Pediatric*, 16, 78.
- Poudel A, Sharma C, Gautam S, Poudel, A. (2016). Psychosocial problems among individuals with substance use disorders in drug rehabilitation centers, Nepal. *Substance Abuse Treatment Prevention Policy*.11(1), 28.
- Saban, A., Flisher, A. J., Laubscher, R. (2014). The association between psychopathology and substance use: adolescent and young adult substance users in inpatient treatment in Cape Town, South Africa. *Pan African Medical Journal*.17(1), 8.
- Squeglia, L. M, & Cservenka, A. (2017). Adolescence and drug use vulnerability: findings from neuroimaging. *Current Opinion Behavioural Science*. 13, 164-170. Available at: <https://doi:10.1016/j.cobeha.2016.12.005>.
- Squeglia, L. M., & Gray, K. M. (2013).Alcohol and drug use and the developing brain. *Current psychiatry reports*. 18(46).
- United Nations Office on Drugs and Crime (UNODC).(2019). World drug report 2019. Available at: <https://wdr.unodc.org/wdr2019/en/exsum.html>
- World Health Organization (2018). Management of substance abuse.Psychoactive substance. Available at: [www.who.int/substance\\_abuse/terminology/psychoactive\\_substances/en/](http://www.who.int/substance_abuse/terminology/psychoactive_substances/en/)
- Yunusa, U., Bello, U. L., Idris, M., Haddad, M. M, & Adamu, D. (2017).Determinants of substance abuse among commercial bus drivers in Kano Metropolis, Kano State, Nigeria.*American Journal of Nursing Science*, 6(2), 125-130.
- Zapata F., Matey, J. M., Montalvo G., & García-Ruiz, C. (2021).Chemical classification of new psychoactive substances (NPS) *Microchemical Journal*.163.